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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/470,890	12/22/1999	PATRICK D. SMITH	PD05924AM	6738

7590 12/15/2003

JONATHAN P MEYER
MOTOROLA INC
1303 EAST ALGONQUIN ROAD
SCHAUMBURG, IL 60196

EXAMINER

BURD, KEVIN MICHAEL

ART UNIT	PAPER NUMBER
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2631

DATE MAILED: 12/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/470,890

Applicant(s)

SMITH ET AL.

Examiner

Kevin M Burd

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,7-33,35,36,38 and 39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,7-33,35,36,38 and 39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

1. This office action, in response to the amendment filed 9/8/2003, is a final office action.

Response to Arguments

2. The objection to the declaration is maintained. The objection has not been addressed in the response filed 9/8/2003.
3. The rejection of the claims under 35 USC 112, first paragraph is withdrawn
Applicant's arguments with respect to claims 1-5, 7-33, 35, 36, 38 and 39 have been considered but are moot in view of the new grounds of rejection. The new grounds of rejection are necessitated by the amendment filed 9/8/2003 and are stated below.

Oath/Declaration

4. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not identify the citizenship of the inventor.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3, 5-18, 29-31, 33, 35 and 38 are rejected under 35 U.S.C. 102(e) as being anticipated by Anderson (US 2003/0016174).

Regarding claims 1, 7-10, 12, 14, 16-18, 29, 35, 38, Anderson discloses a method for identifying impairments (interferers) in a digitally modulated system (abstract). Data is recovered from the modulated signal. Pluralities of impairment masks are applied to the data (paragraph 0370). A correlation weight is calculated based on the received data and the weights determine the likelihood that a particular impairment type is affecting the received signal (paragraphs 0370 and 0374). Examples of the plurality of impairment masks that are used to determine the interference are whether the interference is direct or reflected and the number of interfering (noise) components present within the received signal (paragraph 0370). The system detects a plurality of interferers starting at the strongest interferer (paragraph 0374). Each one of these interferers is a different impairment type. The correlation weights determine if a specific interfere is interfering with the signal.

Regarding claims 2 and 30, identification of interfering components of the signal and specific interferers allows improvement in the transmission quality, normalizing the received data recovered in the receiver.

Regarding claims 3, 11 and 31, examples of the plurality of impairment masks that are used to determine the interference are whether the interference is direct or reflected and the number of interfering (noise) components present within the received signal (paragraph 0370).

Regarding claims 5 and 33, cancellation of interference in the received signal and interference caused by specific interferers overcomes the occurrences of fading in the channel.

Regarding claim 13, the incoming signals are saved or buffered (paragraph 0101).

Regarding claim 15, the amount of interference in a signal is measured (paragraph 0370).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4, 32, 36 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson (US 2003/0016174) in view of Hewitt (US 6,526,538).

Regarding claims 4, 32, 36 and 39, Anderson discloses a method for identifying impairments stated above in paragraph 4. Anderson does not disclose providing a three dimensional presentation of the distribution of the soft decision data over time. Hewitt discloses an encoding scheme with three-dimensional coding schemes or higher (column 6, lines 36-44). To display this data, all three dimensions (x, y and z) must be included (column 4, lines 24-37). Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to utilize three-dimensional encoding of the data streams in the adaptive rate modulator. This would allow more information to be transmitted and then recovered over the communication channel.

6. Claims 19-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson (US 2003/0016174).

Regarding claim 19, 21, 22, 24, 26 and 27, Anderson discloses a method for identifying impairments (interferers) in a digitally modulated system (abstract). Data is recovered from the modulated signal. Pluralities of impairment masks are applied to the data (paragraph 0370). A correlation weight is calculated based on the received data and the weights determine the likelihood that a particular impairment type is affecting the received signal (paragraphs 0370 and 0374). Examples of the plurality of impairment masks that are used to determine the interference are whether the interference is direct or reflected and the number of interfering (noise) components present within the received signal (paragraph 0370). The system detects a plurality of interferers stating at the strongest interferer (paragraph 0374). Each one of these

interferers is a different impairment type. The correlation weights determine if a specific interfere is interfering with the signal. Anderson does not disclose this system for removing interference occurs in a cable modem system. However, it would have been obvious for one of ordinary skill in the art at the time of the invention to use the method disclosed by Anderson to detect interferers and remove the affects of this interference in the received signal in any communication system including a cable modem system. This allows each communication system to operate more efficiently and interference free.

Regarding claims 20 and 25, the incoming signals are saved or buffered (paragraph 0101).

Regarding claims 23 and 28, the amount of interference in a signal is measured (paragraph 0370).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any response to this final action should be mailed to:

Box AF

Commissioner of Patents and Trademarks
Washington, D.C. 20231

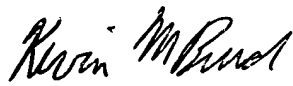
or faxed to:

(703) 872-9314, (for formal communications; please mark "EXPEDITED PROCEDURE" or for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Burd, whose telephone number is (703) 308-7034. The Examiner can normally be reached on Monday-Thursday from 9:00 AM - 6:00 PM.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3800.


Kevin M. Burd
PATENT EXAMINER
12/7/03


TEMESGHEN GHEBRETINSAE
PRIMARY EXAMINER